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THEN AND NOW: CHANGES IN CALIFORNIA ANNUAL-TYPE RANGE VEGETATION

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Foothill grasslands and intermixed woodland areas compose California's largest and most important range type. For more than 300 years, livestock have grazed most of this 15- to 20-million-acre range. Use by game animals, rodents, and other forms of wildlife, of course, traces to the earliest periods.

Little is known of the nature or extent of these ranges in the beginning or even with the advent of livestock grazing. Even more meager is information on the effects of grazing and the changes in vegetation following use or such natural phenomena as fire, flood, and prolonged drought.

Consequently, there are many diverse opinions concerning the consequences of grazing and other disturbances. Some persons trace present unsatisfactory range situations to very early grazing use. Others contend that primitive man maintained the grasslands by frequent deliberate burning and that present-day problems with brush and range deterioration stem from recent fire prevention and control practices.

The facts, however, are very meager. An adequately documented series of changes in vegetation following grazing and/or fire is not available. Consequently, it is difficult to predict accurately the vegetative changes that might occur on a given area after fire or as a result of prolonged grazing use, and it is equally difficult to rechart events which produced an existing situation.

The "before" and "after" photographs included here attest the difficulty of retracing past events from existing situations and of predicting future situations from grazing or other disturbances in the annual-plant type.

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Left to its own devices or even assisted or deterred by man, nature will permit a flush of plant growth in one place, a decline in another, or apparently retain a degree of stability in still another. Different responses may occur in close proximity with little or no apparent reason for the difference. Man's experience with these phenomena has been so brief, and his observation so discontinuous or preliminary that he still does not thoroughly understand the changes.

We hope that the examples presented here will add in some small way to this understanding.

Three different situations developing over roughly the same span of time, 1937 to 1959, are illustrated: an increase of woody plants, little change in vegetation, and a decrease of woody plants. The photographs were taken from permanently marked stations at the San Joaquin Experimental Range near O'Neals, California. This 4,600-acre area, lying between 700 and 1,700 feet in elevation, 28 miles north of Fresno, constituted a private ranch holding before 1934. Little is known of the grazing and fire history before that date except that sometime around 1927 to 1929 a wildfire swept over most of the area. The several situations portrayed are rather typical of the natural variations found in the annual-plant type at this elevation.

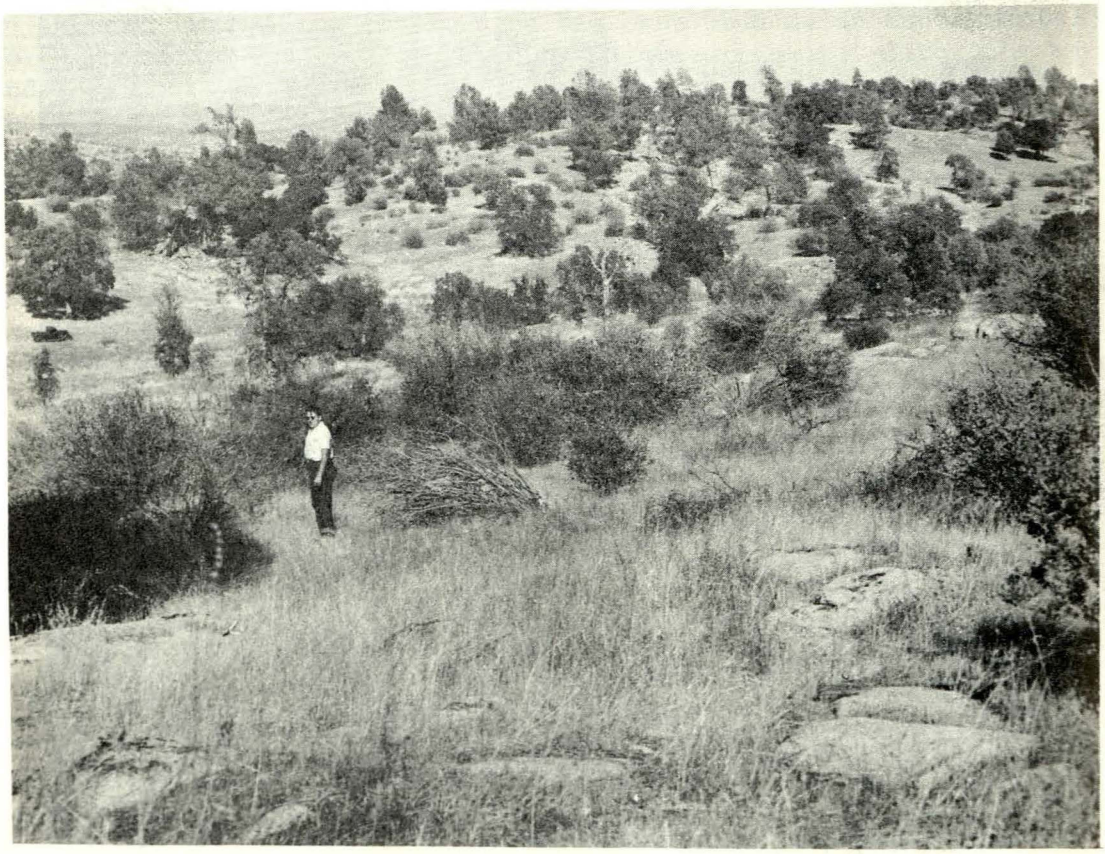
Since 1934 the entire area has been used as an experimental range for grazing and livestock research. The occurrence of fire, the amount and season of grazing, and the vagaries of weather have been carefully recorded. Nothing sufficiently unusual can be found in these records to particularly distinguish the 1937 to 1959 period from prevailing patterns so far as they are known.

RAPID INCREASE OF UNDESIRABLE WOODY PLANTS WITHOUT FIRE OR LIVESTOCK GRAZING

The original photos were made several years after wildfire passed over the area. No livestock grazing has been permitted on this portion of the range since 1934. Digger pine (*Pinus sabiniana* Dougl.) and wedgeleaf ceanothus (*Ceanothus cuneatus* (Hook) Nutt.) have increased greatly. Five photos from two stations portray the changes.

Station 1 - Photo 1. October 20, 1938.

Station 1 - Photo 2. December 8, 1959.



Station 2 - Photo 1. October 20, 1938.

Station 2 - Photo 2. October 9, 1946.

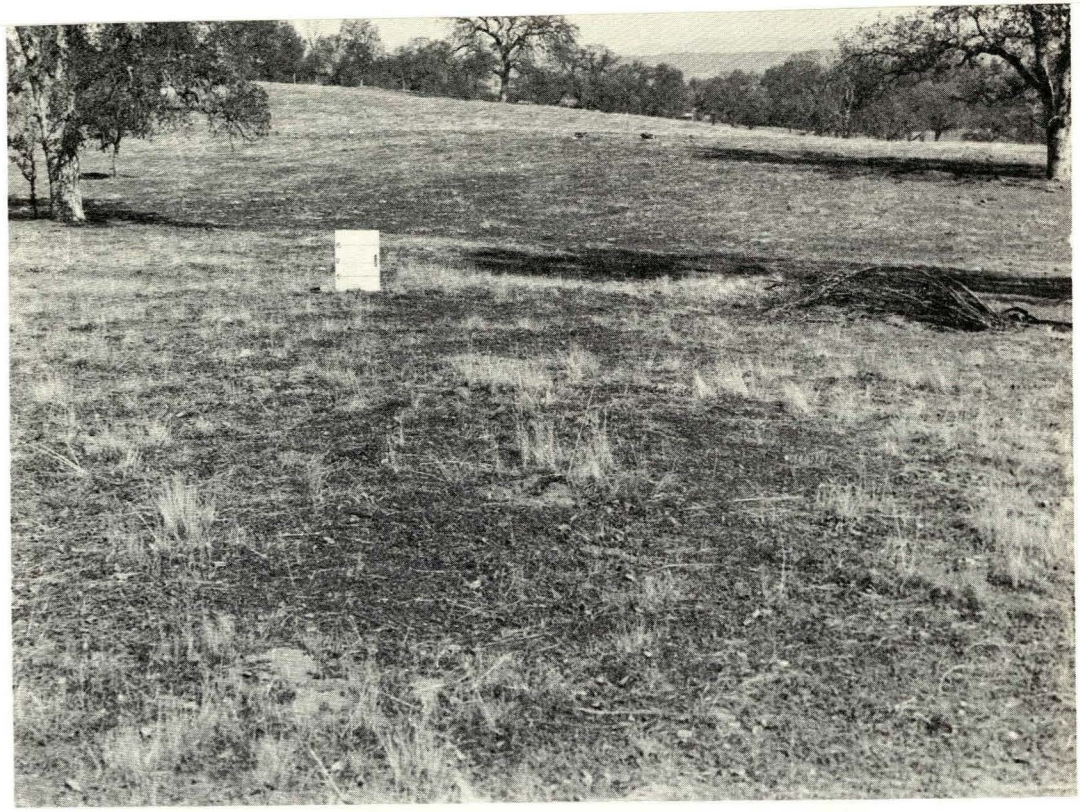
Station 2 - Photo 3. December 8, 1959.

LITTLE CHANGE IN WOODY PLANTS WITH MODERATE TO LIGHT (LOCALLY HEAVY) LIVESTOCK GRAZING AND NO FIRE

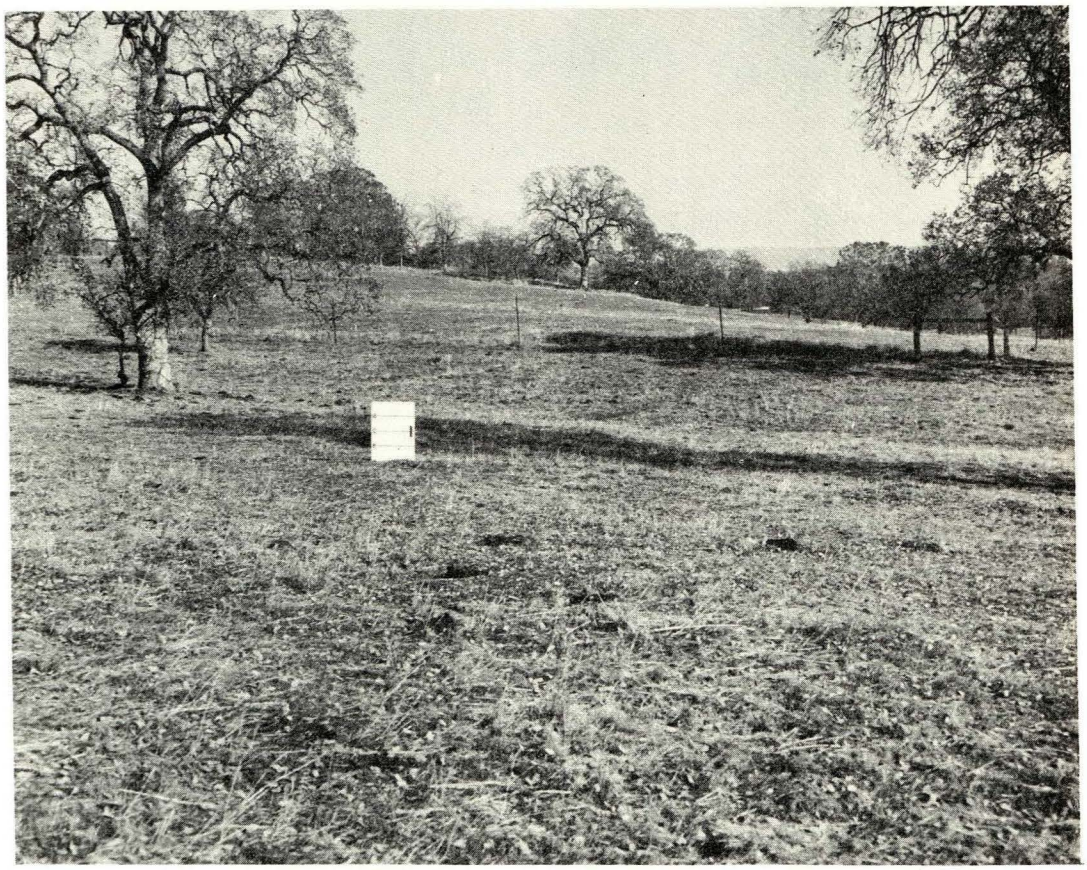
During a 22-year period this area experienced moderate to light livestock grazing seasonally, with local heavy use in some years, and no fire. Four photos from two stations show this situation.

Station 3 - Photo 1. August 30, 1937

Station 3 - Photo 2. December 15, 1959.



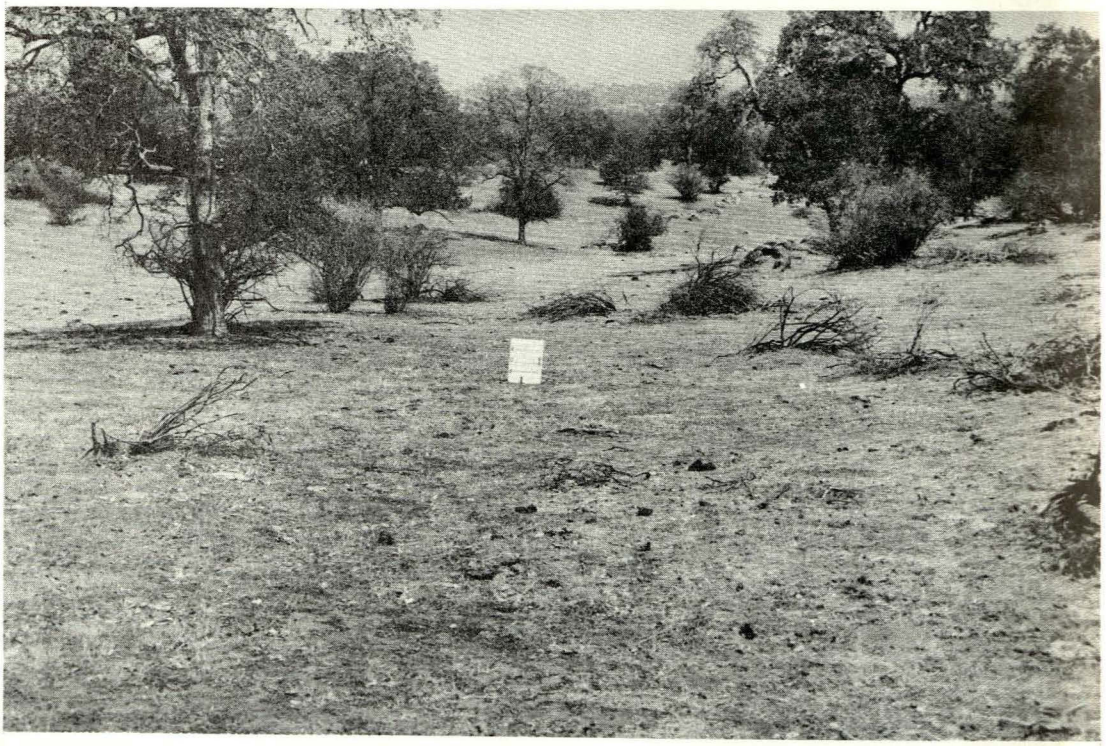
Station 4 - Photo 1. September 14, 1937.



Station 4 - Photo 2. January 3, 1960.

DETERIORATION OF UNDESIRABLE WOODY PLANTS WITH MODERATE TO CLOSE YEARLONG LIVESTOCK USE BOTH WITH AND WITHOUT (STATION #6) FIRE

Woody plants, largely ceanothus, decreased during 20 years in this area with moderate to close yearlong grazing both with and without fire. Four photos from two stations, one burned in 1954, the other (Station 6) unburned, show this deterioration.



Station 5 - Photo 1. August 10, 1939.
Station 5 - Photo 2. December 30, 1959.

Station 6 - Photo 1. August 11, 1939.

Station 6 - Photo 2. December 15, 1959.